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MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KY.

Continued from Page 149.

LITHOCOLLETIS.

27. *Lithocolletis*? *Ornatella*. *N. sp.*

This is the insect previously mentioned in these papers as *Leucanthiza Ornatella*. At first I was inclined to place it in *Lithocolletis*, but a consideration of some of its peculiarities induced me to place it provisionally in Dr. Clemens' genus, *Leucanthiza*. On examination of the neuration of the wings, however, and of some other points in its structure and habits, it seems to me to belong more properly to *Lithocolletis*, though it differs from it in some respects and approaches *Leucanthiza*, and more remotely, *Phyllocnistis* and *Lyonetia*. The tuft is small, resembling that of *Leucanthiza* more than *Lithocolletis*. The palpi, ascending in the living insect as in both of those genera, are, after death, usually, not simply drooping as in *Lithocolletis*, but laid side by side upon the coxæ as in *Lyonetia*. Sometimes, however, they are simply drooping. (Where the "Micro" is killed by the fumes of chloroform—as I usually kill them—the positions of the palpi, tongue and wings are variable, and do not afford good generic characters.) The larva, perhaps, resembles that of *Leucanthiza* most nearly, having the head too much rounded and the sides of the segments more distinctly mammillated than the flat larva of *Lithocolletis*. It also usually leaves the mine and pupates in a yellowish silken *nidus*, in which it resembles *Leucanthiza* and *Lyonetia* more than it does *Lithocolletis*. The wings, however, have fewer veins than those of either *Leucanthiza* or *Lyonetia*, and approach very nearly in their neuration to some species of *Lithocolletis*, though also differing slightly from it. *Lyonetia* has a smooth head, longer palpi, and the basal joint of the antennæ expanded so as to form an eye-cap, and there are *four marginal nervules emitted from the sub-costal vein*. The mine is a long narrow winding track like that of *Phyllocnistis*, and in all of these respects it differs from this

insect, and it also differs in the form of the larva. *Phyllocnistis* differs in the form of the larva and of the mine. It pupates in the mine; the head is smooth, and the anterior wings are caudate. In all of these respects it clearly differs from this insect. The neururation of the anterior wings, however, differs from that of this insect only in having *one more marginal nervule given off from the median vein*. In *Lithocolletis* there is *one nervule emitted from the tip of the discal cell*, and it passes to the tip of the wing. In *Leucanthiza* there are *two*: one going to the costa, the other to the hind margin. In this insect there is *but one*; but that one is *furcate*, sending a branch to the inner margin, and one to the tip. In *Leucanthiza* the subcostal sends three short veins to the costa. In *Lithocolletis* it sends but two, and in many species one of them is emitted at the base of the apical nervule, while in others they are both more remote from the apical nervule as they also are in *Leucanthiza*. In this insect the subcostal sends but two nervules to the costa, one of which is emitted at the base of the apical nervule, as in some species of *Lithocolletis*. In *Leucanthiza* and in *Lithocolletis*, so far as I have observed (except in *Lithocolletis desmodiella*) and in *Phyllocnistis*, the median vein sends two nervules to the hinder margin, whilst in this insect and in *L. desmodiella* it sends but one. *L. desmodiella* also strongly resembles this insect in the pattern of ornamentation; but it belongs to the division of that genus which has cylindrical larvæ. Clemens states that *the subcostal vein of the hind wings is simple* in *Leucanthiza*. I have not examined it. He also says that it is *simple* in *Lithocolletis*; but I have found it *distinctly furcate* in every species that I have examined, and I have examined several. He says that it is *furcate* in *Phyllocnistis*. But I have found it *simple* in *P. vitifoliella* n. sp. He says that it is *furcate* in *Lyonetia*. I have not examined it. In this species it is *distinctly furcate*, precisely as I have found it in *Lithocolletis* and as Clemens describes it in *Lyonetia*.

This insect, therefore, seems to me to approach more nearly to *Lithocolletis* both in pattern of colouration and structure, than to any of the above named genera, although it is very near to *Leucanthiza*, if it does not in fact bridge over the differences between them, and reunite *Leucanthiza* to *Lithocolletis*—from which Dr. Clemens separated it. The pattern of colouration in the wings of *Leucanthiza* also differs from this insect, though the shades of the colours, and the disposition of them on the head, thorax, and base of the wings is the same in the only species described by Dr. Clemens, viz.: *Leucanthiza Amphicarphaefoliella*.

This insect, therefore, is properly placed in *Lithocolletis*, or a new

genus must be created for it; and I am averse to the multiplication of genera on small differences. And if this insect is properly placed in *Lithocolletis*, then *Leucanthiza* only differs from *Lithocolletis* in the neuration of the wings and but little in that.

The tongue is yellowish: palpi silvery white. Face, under surface and legs, silvery white, opalescent or purplish, according to the light. The legs are marked with golden brown on their anterior surfaces. Antennæ brown, opalescent in some lights. Tuft, thorax, and base of the wings, maroon, opalescent or golden, according to the light, more golden towards the dorsal margin of the wing, and brownish towards the costa, passing at about the basal $\frac{1}{4}$ into a dark maroon band, which forms the dark internal margin of the first silver-white fascia; behind this fascia, the wing is pale golden, passing into deep golden, then brownish golden, and into the deep maroon internal margin of the second silvery-white fascia which is placed about the middle of the wing; then the same succession of colours to the third fascia, which is slightly intercepted in the middle; then the same succession of colours to a costal white streak at the base of the ciliæ, and an apposite dorsal one; these streaks are also faintly dark margined on the apical side. Apical portion of the wing bright golden, ciliæ silvery, with a wide maroon-brown hinder-marginal line at the base. The golden portions of the wing vary with the light from golden to a red saffron, suffused with purple or brown, and the fasciæ are white, silvery, or steel-gray. The cocoon is yellow. The larva is that described by Dr. Fitch as the larva of his *Anacamptis robiniella*. The mine is flat, yellowish, and upon either side of the leaflet of the Locust (*Robinia pseudacacia*), and the Rose acacia (*R. hispida*). Alar. ex. $\frac{1}{4}$ inch. Common in Kentucky. (*L. robiniella* also feeds on *R. hispida*).

28. *L. Salicifoliella*.

In *Proc. Ent. Soc. Phila.*, VI., p. 77 and p. 81, Dr. Clemens applies this name to a species which was known to him only by its mine, which, he says, is "near the base along the edge" of the leaves of the yellow willow (*Salix Alba*), and the mines were empty. He found the mines in the latter part of July. Dr. Packard mentions the species (*Guide*, p. 353) on the authority of Dr. Clemens. But the insect remains unknown unless that presently described is the same, as I believe it to be. I have two specimens, differing slightly from each other, as noted below, but which I have no doubt are of the same species. One was bred from a mine on the underside of a leaf of the Weeping Willow (*S. Babylonica*); the

other from a mine on the underside of a leaf of *S. longifolia*; and I have found empty mines exactly like them and containing the same dark brown pupa skin, on the leaves of the Yellow Willow (*S. alba*), and it was in leaves of this species that Dr. Clemens found his mines. These mines were not "near the base along the edge," and were not confined to any particular portion of the under surface. I have seen another smaller mine near the base and at the edge of the leaf, which may be that of a *Lithocolletis*, but which is more probably that of a *Gracillaria*. And I have but little doubt that the species now to be described is the same that was referred to by Dr. Clemens. But I am not certain that it is not the European species *L. pastorella*. That species also feeds on *S. alba*, which, as well as *S. Babylonica*, is an imported species, and if either of these trees is its original food-plant, then *L. salicifoliella* is not an indigenous species. But if *S. longifolia* is its original food-plant, then it is. In Stainton's arrangement of the species, *L. pastorella* belongs to his group 5. "Anterior wings dull whitish-gray, with indistinct darker marginal markings;" and he places it next before *L. populifoliella*, which he figures. (*Nat. Hist. Tin. v. 2, plate 7, fig. 1*) and which has, as figured, a strong general resemblance to this insect. It is therefore not impossible that this is *L. pastorella*. It is intermediate between *L. populifoliella* and *L. sylvestra* as figured by Stainton, and in the arrangement of the species which I have followed, it should follow *L. hamadryadella*, which also bears considerable resemblance to *L. sylvestra*. *L. hamadryadella*, however, resembles this species rather in the colour of the markings than in the arrangement of them.

The specimen from the Weeping Willow has the palpi and face white, the face flecked with a few pale yellowish gray scales. Tuft brown with intermixed grayish-brown scales. Antennae white, each joint tipped above with pale grayish-brown. Thorax and anterior wings white, thickly dusted with grayish-brown, and the markings of the wings are drab, gray-brown or pale golden, according to the light. There is an oblong streak of this indescribable hue on the base of the costal margin, and a rather indistinct patch of the same near the base of the dorsal margin, but not touching the margin; a slightly curved, angulated fascia of the same hue at about the basal fourth; a slightly oblique, rather wide costal streak of the same hue just before the middle, and dark-margined behind upon the costa: it extends to the middle of the disc, where it is bent backwards, and is posteriorly produced almost to another straight fascia of the same hue, which is placed behind the middle, it is

slightly interrupted in the middle, and is narrowly dark-margined posteriorly; (on one wing it is not interrupted, but it is angulated and produced posteriorly); another rather wide fascia of the same hue, before the ciliæ slightly produced along the base of the dorsal ciliæ. An apical brown streak and a costo-apical streak (of the same hue as the fasciæ), which reaches the inner end of the brown streak and is there bent backwards passing around the end of the brown streak, and in a direction nearly parallel with it to the dorsal ciliæ just behind the apex. Hinder marginal line at the base of the apical ciliæ golden brown. Ciliæ pale golden. The specimen from *S. longifolia* is scarcely at all dusted, the markings are paler and narrower, though similarly disposed, and the white ground colour is not so marked as in the other, but I have no doubt they are of the same species.

29. *L. juglandiella*.

Dr. Clemens (*loc. cit.*) names this species also from the larva which he found mining the upper surface of leaflets of the Black Walnut (*Juglans nigra*), and Dr. Packard refers to it in the same way as to the last named species. Dr. Clemens suggests the probability that it may be identical with *L. caryaefoliella*. I have never found it on the Walnut, but have occasionally, though rarely, found it in the leaves of the Butternut, (*Juglans cinerea*), and judging from the larva, without having bred the imago, I have no doubt that it is *L. caryaefoliella*. Clemens, *ante p. 109*.

L. tubiferella. Clem. *Proc. Acad. Nat. Sci., Phila., June, 1860, p. 208*.

I have not succeeded as yet in getting this species from the mine, and have never seen the imago. But I have found on the upper surface of leaves of the White Oak (*Quercus alba*) a larva and mine which I believe to be the same described by Dr. Clemens. It is a long, rather narrow band, gradually widening, in which the larva lies transversely, eating first upon one and then upon the other side, so that the frass is deposited in a narrow line along each side. Dr. Clemens has alluded to the peculiar appearance of the larva, which in fact differs from the ordinary flat *Lithocolletis* larva, as much as that does from the larva of the first group (cylindrical). It is considerably larger, vertically thicker, depressed but not flat, the head is more obtusely rounded in front, and the sides of the segments are more distinctly mamillated. The cuticle is sleek and shining. It is white, with the alimentary canal nearly colourless or watery, and the contents of the body on each side of it white and granular. It remains much longer in the larval state than the other species, and hence is much more

difficult to rear. It eats voraciously for a few days, and then remains quiet without appearing to eat at all for several days.

A larva precisely like it, but in a different blotch mine, inhabits the leaves of the Black Oak (*Q. ilicifolia*?).

Another like it, but with the mine a little different from the last, inhabits oaks of the Willow Oak group. Another still inhabits leaves of the Beech (*Fagus ferruginea*).

Still another in the leaves of the Sugar Maple (*Acer saccharinum*).

Another (two others?) similar but different, mines the leaves of different species of *Desmodium*.

I have never known one of them to enter the pupal state, though I have kept them nearly two months in the larval state, in which condition they still remain alive in the dead leaves, as if they would hibernate as larvae. The Black Oak species and that of the *Desmodium* construct little circular depressed cocoons like those of *L. corylicella*, &c., in which the larvae are reposing. (The *Desmodium* larvae are distinct from the others, and may possibly produce a *Leucanthiza* or some other allied genus). I think there can be but one brood in a year, and that larvae found in July continue to be larvae until the next spring.

I have met also with the following larvae of the second (flat) group and mining the upper surface of the leaves. Possibly some of them may prove to be the same with species already described, but I scarcely expect it. Most, if not all, are new species. One mines the leaves of the Chestnut (*Castanea*).

Two species, if not three, mine those of oaks of the Willow Oak group. One mines those of the Water Beech (*Carpinus Americana*), and also of the Hornbeam or Ironwood (*Ostrya Virginica*).

Of the first (cylindrical) group there is the species (perhaps two species) mining leaves of the (*Helianthus*) Wild Sun Flower.

A species which may prove to be *L. crataegella* mining leaves of the Wild Red Plum (*Prunus Americana*).

And a species which is probably *L. basistrigella*, mining the leaves of Black Oaks (*Q. ilicifolia*, &c.) The mine and cocoon are the same, with those of *L. basistrigella* on the White and Chestnut Oaks.

Also a mine on the upper surface of Haw leaves (*Crataegus*) which seems to be identical with that of *L. virginicella* on the *Ostrya virginica*.

DESCRIPTION OF A NEW ARCTIA FROM COLORADO.

BY CHAS. R. DODGE, WASHINGTON, D. C.



FIG. 34.

ARCTIA WILLIAMSII, *n. sp.*—(See fig. 34).

Anterior wings rich chocolate-brown with creamy white stripes or markings. Costal margin lighter brown. A broad line running from the base of the median vein nearly to the posterior angle, where it becomes slightly forked; from this proceeds a slightly curved narrower branch, from the centre of the wing nearly to the costal edge, and one-third the distance from the apex; a zigzag mark composed of three straight lines, the first being the broadest, and the third one-half the length of the others, proceeds from the outer angle, where it joins the first line, and terminates under the costal edge; the whole forming a distinct W crossed at the top by the transverse band. Inner edge faintly marked with creamy white.

Posterior wings dull red, marked with dark brown spots. Inner edge yellowish; costa and outer edge with a dark border, formed by confluent spots, narrowest at the middle third, the spot at the posterior angle more prominent, and triangular in shape; a large heart-shaped spot occupies the centre of the outer third of the wing, nearly touching the outer edge, and is surrounded by four smaller spots, the one near the inner margin wedge-shaped and extending to the base of the wing. Fringes dirty yellow. Alar. expanse 1-1.5 inch.

Antennæ brown. Head creamy white above, brownish around the eyes. Thorax brown with lateral lines of creamy white; shoulder tippets edged with same colour. Body beneath uniform light brown; above, darker, with two broad red lateral stripes which become yellowish at the tip. Habitat.—Colorado Territory.

This beautiful little species is dedicated to Mr. Henry T. Williams, of the "Horticulturist," to whom I am indebted, more than to any other person, for my summer's ramble through the Rocky Mountains.

The accompanying figure, though not quite correct in detail, will give an idea of the markings by which this moth is characterized. On the anterior wing, the upper fork of the line running from the base, is too heavy, and too long, giving the appearance of *four* zig-zag marks when there are but *three*, while the spots on the hind wings, though correctly placed, are not in every instance exactly of the right shape.

ON A NEW GRASSHOPPER FROM COLORADO.

BY C. THOMAS, WASHINGTON, D. C.

Caloptenus Dodgei. Nov. sp.

Posterior femora with three white bands; elytra not more than half the length of the abdomen.

Male. Small size. Vortex elongate, distinctly channelled; frontal costa broad, flat and squarely margined above the ocellus, margin punctured; antennae thick, passing the thorax, joints short, distinct, and somewhat obconic. Transverse incisions of the pronotum distinct; posterior lateral margins very slightly incurved at the humerus; median carina distinct only on the anterior and posterior lobes. Elytra about half the length of the abdomen, oblong-ovate. Posterior femora about as long as the abdomen. Prosternal point thick, obtuse, transverse. Cerci slender; sub-anal plate somewhat pointed, the margin on the upper surface entire.

Colour. Brown varied with white. Face cinereous, occiput and disk of the pronotum dark brown, mottled with lighter and darker shades, except the posterior lobe, which is uniform brown. Elytra brown, lower half very dark; on each side of the head and pronotum, behind the eye, is a dark brown glabrous spot, not extending further back than the third incision. A white oblique spot above the posterior coxae. Posterior femora with three white bands on the outside, the one nearest the apex much the smallest, the middle dark band abruptly bent forward at the middle of the disk. Abdomen pale, mottled with reddish-brown. Four anterior tibiae pale reddish-brown. Antennae pale at base, the rest rufous.

Female. Pronotum uniform dark brown, except the spot on the side, and that the posterior lobe is a bright reddish-brown. Elytra extend over but two segments. Abdomen brown.

Dimensions. ♀ Length .85 in.; elytra .2; posterior femora .4; posterior tibiae .32. ♂ Length .56 in.; elytra .18; posterior femora .37; posterior tibiae .26.

Pike's Peak, Colorado Territory.

Named in honor of Mr. Charles R. Dodge of the Agricultural Department, Washington, who recently discovered it during an ascent of Pike's Peak.

It is important in one respect, showing the effect of altitude (about 10,000 feet above the level of the sea) on the antennae, contracting their length, but compensating by thickening; also rendering the joints more distinct. It approaches *Pezolettix* in two respects, the shortness of the wings, and the slope of the posterior lateral margins of the pronotum.

NEW ENEMIES OF THE COLORADO POTATO BEETLE.

BY E. B. REED, LONDON, ONT.

MYSIA 15 PUNCTATA, *Oliv.*

Sometime during the latter part of July last, while wandering about the outskirts of a large potato patch, and examining the damage caused by the Colorado beetle, I found on the vines the larva of a beetle belonging to the family of *Coccinellidae* or Lady Birds. The insect was new to me, and although there were no larvæ of the Colorado beetle in the immediate vicinity, yet I was in hope that I had discovered a new enemy of our abominable pest. To test the question more at leisure, I took my newly-found treasure home, and placed it in a box, wherein were numerous specimens of Colorado larvæ in all stages, from the diabolical looking little monster just hatched from the egg, to the full-grown, fat, and repulsive larva dragging its bloated body slowly about in search of some convenient place to undergo the transformation into the pupal state. The box was roomy and covered with a glass top, so that I had ample opportunities of observing what took place. After a little preliminary tour of inspection, my Lady Bird friend caught sight of a small Colorado, and immediately made a bee line for it, and commenced a fierce attack upon the unhappy little victim, seizing it in the powerful jaws, with which Dame Nature has provided most of these creatures, and in the course of a very few minutes sucking the juices completely out, and leaving only the dry and blackened looking skin as a ghastly monument of its victory. It then commenced its attacks, after a short interval, on a full-grown specimen, which, however, had strong objections to be eaten all-alive-oh, and struggled viciously with its enemy, which was not nearly so large, although of course much more active. Its efforts at resistance were vain, and after Mr. Lady Bird had got its jaws firmly fixed in its victim's broad and capacious back, the struggles soon ceased, and it became a question of the capacity of the Lady Bird larva, to contain all the juices that were in the body of its corpulent victim. Nearly an hour was occupied in this little operation, and when it was over, our friend retired to rest on its laurels and digest its enormous meal at its leisure.

For several days I watched at different times a repetition of the same thing, and the Lady Bird must have consumed some eight or nine Colorado larvæ. I regret that I neglected to make any description of

the larva; and, being called away from home just at this time, I found on my return that the larva had gone into chrysalis, and in a few days afterwards, the perfect beetle emerged, and proved to be a very light-coloured specimen of *Mysia 15 punctata* Oliv. (Fig. 35). This beetle, as may be seen from the engraving, varies very much in its perfect form, so

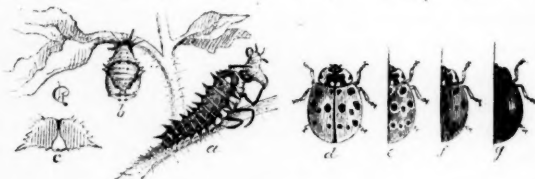


FIG. 35.

much so, indeed, that a careless or unskilled observer would never imagine that these four insects belonged to one and the same species.

PERILLUS CIRCUMCINCTUS, Say.



FIG. 36.

This insect (Fig. 36) belongs to the *Heteroptera Hemiptera*, or true Bug family. It was brought to me by a friend, who had detected it in the act of killing a Colorado Beetle larva, by piercing the soft body of the larva with its long rostrum or beak.

I placed this insect also in my glass-covered box, and watched its operations, and mode of attack. It moved very quietly, and attacked the larva with a sudden dart of its sharp-pointed beak. The larva, of course, struggled with all its power, yet it never seemed at all to loosen the hold of the bug, which rather astonished me, for I am at a loss to see what enables the beak to be retained so firmly; for, as far as I can ascertain, the beak is tolerably smooth, and easy of withdrawal if the bug is willing. Yet, when I attempted to take the larva off the beak, I had to use some slight degree of force. The bug, moreover, has a curious fashion of planting himself squarely and firmly on his feet, with the beak raised nearly horizontal, and the victim poised, or spitted on it, and writhing about quite clear of the ground.

I had the curiosity to weigh the bug, and also a larva which I saw it attacking, and the larva was very nearly as heavy as the bug, and yet it seemed no exertion to the bug to raise its victim on the point of its beak, and hold it suspended there while it sucked out the contents of the body.

Whether the close confinement of the box was not calculated to pro-

mote its general health, or whether the diet of Colorado larvæ was too overpowering, I do not know; but after eating about half a dozen larvæ, my bug seemed to lose his appetite. So I at once killed him, and sent him for identification to Mr. Riley, who named it for me. Both the drawings of these two new insect friends are from the clever pencil of Mr. Riley, who kindly permitted me to obtain electrotypes of them.

I shall be glad to hear from any of the members of the Society residing in Ontario, whether the Colorado beetle has done much damage in their neighbourhood. In many places, I am aware, some mischief has been caused, but the potato crop generally seems to have been an unusually good one, even in those districts where the beetle was prevalent.

I would also ask the members to keep a sharp look out for any parasites or other enemies which they may discover attacking the Colorado larvæ. We know already of sixteen, and we hope that the number may largely increase. Any communications on this subject will be gladly received.

CHICAGO FIRE—APPEAL TO ENTOMOLOGISTS.

Mr. J. Q. A. Warren, of England, recently residing temporarily in Chicago, writes to us from St. Paul's, Minn., as follows:—"Having lost my entire collection, by the fire in Chicago, of Entomological and other Natural History specimens, the work of the past year in the West, as well as of years abroad, I beg to solicit correspondence and specimens from American Entomologists for a new collection, for which I will send European duplicates as soon as I reach Europe. My loss is heavy, over \$3000, and the patient labour of months.

"Help me all you can, and I will appreciate it fully, and do all I can in return. Address me at New York after Nov. 1st., care of Adams' Express Company, for parcels, and by mail to New York post office."

Mr. Warren, we understand, had a very large collection in Chicago, which he was intending to take back to England this winter, but it was entirely consumed in the great fire. He is anxious to replace it, as far as possible, before his return, which will be in December. We trust that all our readers, who have it in their power, will assist Mr. Warren with specimens, and enable him to take back a goodly representation of the Insect life of this country.

INSECTS OF THE NORTHERN PARTS OF BRITISH AMERICA.

COMPILED BY THE EDITOR.

From Kirby's Fauna Boreali-Americana: Insecta.

(Continued from page 156.)

[104.] 148. OICEOPTOMA [SILPHA] CANADENSE Kirby.—Length of body 7 lines. Taken in dead fish on the shores of Lake Huron in Canada, by Dr. Bigsby.

This species approaches near to *O. Americanum*, but it is smaller, the frontal impression is deeper and oblong; the discoidal spot of the prothorax is much larger, extending from the anterior to the posterior margin, it is scarcely at all lobed, and only the punctures of its posterior part exhibit the appearance of angular scratches: the elytra are dirty-yellow at the apex, and the yellow occupies a much greater portion of the extremity than in the two preceding species, they are not acuminate at the tip, but have a very slight tendency to a sinus; the epipleura in colour resembles that of *O. Americanum*, but is less brilliant. [Also a variety of *S. peltata*.]

FAMILY TROGOSITIDÆ.

149. PELTIS FERRUGINEA Linn.—Length of body 5 lines. A single specimen taken in the journey from New York to Cumberland-house. The insects of this genus are usually to be met with under the bark of trees, and in fungi.

[105.] Body oblong, flat, ferruginous, resembling greatly, as De Geer has observed, the common bed-bug. Head thickly punctured; prothorax deeply emarginate for the reception of the head, thickly punctured; lateral margin sloping, reflexed: disk of the elytra with six elevated ridges gradually diminishing in length from the suture outwards; between the ridges is a double row of punctures, each pair of punctures being connected by a transverse furrow: outside the discoidal ridges are several irregular rows of punctures; lateral margin reflexed; epipleura linear at the apex, gradually dilated at the base. [Taken in Canada.]

FAMILY NITIDULIDÆ.

150. NITIDULA OBSCURA Fabr.—Length of body $2\frac{1}{4}$ — $2\frac{1}{3}$ lines. Several specimens taken in Lat. 65° .

Body subdepressed, black, with its lustre obscured by inconspicuous decumbent subcinereous hairs. Head minutely punctured, transversely impressed between the eyes; occiput elevated; mouth and stalk of the

antennæ piceous: prothorax minutely punctured, most visibly at the sides, which are depressed; lateral margin reflexed; elytra very obtuse at the apex, they have the appearance of being acuducted which seems to be produced by the pubescence: legs piceous or rufo-piceous.

[106.] 151. *NITIDULA OSSIIUM Kirby*.—Length of body $1\frac{1}{2}$ — $1\frac{3}{4}$ lines. Several specimens taken in Lat. 65° .

Mr. Stephens regards this as a variety only of the preceding species, but it is smaller, narrower in proportion, the legs and stalk of the antennæ are paler, and the elytra and sides of the prothorax, in the British as well as American specimens, are piceous. In other respects they agree.

152. *NITIDULA DISCOIDEA Fabr.*—Length of body $1\frac{1}{3}$ lines. Many specimens taken in Lat. 65° .

Considerably smaller than the British specimens. Body subdepressed, black, above minutely punctured, subpubescent. Stalk of the antennæ; sides of the prothorax, which has posteriorly a pair of discoidal obsolete impressions, legs and anus, rufous: elytra with a large anterior discoidal suborbicular pale-rufous spot common to both, in which, in some specimens, is a black dot; apex of the elytra obscurely variegated with rufous. Fabricus, and after him Mr. Marsham, describes the legs of this species as black; but others have properly denominated them by the term ferruginous and piceous. In the American specimens they vary in colour from piceous to pale-rufous.

[107.] 153. *IPS DE JEANII Kirby*.—Plate ii., fig. 4.—Length of body $2\frac{1}{4}$ lines. Three specimens taken in Lat. 65° .

Body linear, depressed, thickly and minutely punctured, glossy, black or dark piceous. Head with a punctiform impression in the vertex, and a larger impression on each side between the eyes: prothorax quadrangular, rather narrowest behind: elytra piceous or rufo-piceous, with two oblong white spots at the base, forming an interrupted line, and two oblique nearly parallel ones below the middle: legs piceous. In the other sex the elytra are subacuminate. VARIETY B. With five white spots, viz.: 1, 2, 2. [Taken in Canada; and north shore of Lake Superior (Agassiz).]

[108.] 154. *CHOLEVA (CATOPS) SPENCIANA Kirby*.—Length of body 2 lines. A single specimen taken. Locality not stated.

Body black, covered with decumbent pale hairs. Head minutely punctured; antennæ shorter than the prothorax, the two first joints ferruginous, the eighth shorter and smaller than the rest; mouth and palpi ferruginous; prothorax not visibly punctured with all the angles

rounded ; base with a slight sinus on each side : elytra acute, very minutely punctured with a hair emerging from each puncture, without furrows except a single one parallel with the suture, ferruginous, black at the tip : abdomen piceous, rufous at the base : legs ferruginous. [Belongs to the family *Silphidae*.]

[109.] FAMILY SCAPHIDIIDÆ.

155. *SCAPHIUM CASTANIPES* Kirby.—Plate v., fig. 1.—Length of body 3 lines. A single specimen taken in the journey from New York to Cumberland-house.

Body naked, glossy ; underneath smooth, black, with a very light shade of bronze ; above more evidently bronzed, punctured. Mouth, palpi, and antennæ pale chestnut : prothorax behind, on each side, marked with a pair of punctiform impressions, between these impressions are several large punctures, but not in a regular transverse series as in *Scaphidium* : elytra with six discoidal rows of punctures ; the four rows nearest the suture reach the base, but not the apex, and the two external ones neither base nor apex ; the first row also terminates towards the base in three large distinct punctures, and from the base of the third runs a transverse row, as in *Scaphidium*, to the sutural furrow, which is impunctured : the legs are pale chestnut.

[110.] FAMILY ANISOTOMIDÆ.

156. *LEIODES PUNCTO-STRIATUS* Kirby.—Length of body 1 line. A single specimen taken in Lat. 65°.

Body hemispherico-ovate, naked, glossy, chestnut. Head very lightly punctured ; mandibles rather prominent ; palpi and antennæ rufous, clava of the latter much incrassated consisting of five joints, the second of which is extremely minute : prothorax very large, wider than long, very lightly punctured, with the sides paler than the disk : elytra deeply and grossly punctured in rows, interstices impunctured : legs and under-side of the prothorax rufous : anus paler than the rest of the abdomen. This species closely resembles the *Anisotoma badia* of Sturm, but the elytra are not *finely* punctured, as Mr. Stephens describes them in that species.

FAMILY SYLVANIDÆ [LATHRIDIIDÆ.]

157. *CORTICARIA DENTICULATA* Kirby.—Length of body 1 line. A single specimen taken in Lat. 65°.

[111.] Body dark piceous, rather glossy, naked, minutely punctured. Prothorax rather orbicular, with a circular deepish impression just above the scutellum ; sides distinctly denticulated : elytra with several rows of

punctures. The insect here described approaches very near to *C. impressa* Marsham, but it is sufficiently distinguished not only by its colour but chiefly by the very visibly denticulated sides of its prothorax. [As the specific name of this insect is preoccupied, it has been named *C. Kirbyi* by Dr. Le Conte. Taken by Agassiz's Expedition on the north shore of Lake Superior.]

FAMILY CRYPTOPHAGIDÆ.

[112.] 158. *ATOMARIA ATRA* Stephens.—Length of body $2\frac{3}{4}$ lines. One specimen only taken.

Body black, punctured, glossy. Mouth reddish; antennae rufous: elytra pubescent, piceous, rufous at the tip: anus and legs rufous.

159. *CRYPTOPHAGUS HUMERALIS* Kirby.—Length of body $1\frac{3}{4}$ line. Several specimens taken in Lat. 54° .

Body subcylindrical, black; above punctured and pubescent, rather glossy. Prothorax rather widest behind, with the basilar angles somewhat depressed: scutellum transverse, obtusangular: shoulders of the elytra obscurely rufous: legs, especially the tibiae and tarsi, pale chestnut.

160. *CRYPTOPHAGUS CONCOLOR* Kirby.—Length of body $1\frac{1}{2}$ line. A single specimen taken in Lat 54° .

[113]. In shape, sculpture and pubescence this species resembles the preceding, but it is smaller, and the whole insect is entirely of one colour—dark ferruginous.

N. B.—The two species last described differ from the other *Cryptophagi* in having the thorax without serratures or denticles, and the scutellum obtusangular, and may perhaps form a subgenus.

FAMILY DERMESTIDÆ.

161. *ATTAGENUS CYLINDRICUS* Kirby. Plate vii., fig. 3.—Length of body 2 lines. Two specimens taken in the Rocky Mountains.

This little species has much the air of a *Cryptophagus*, but belongs to the present genus. The body is subcylindrical, dark-piceous, very minutely punctured, and covered, but not thickly, with decumbent cinereous hairs. The two first joints of the antennae are large, globular, and of the same colour with the rest of the body; the intermediate ones very minute and pale rufous; the three last are incrassated and form an oblong piceous knob, of which the terminal joint is as long as the two preceding ones, ovate and acute: the prothorax behind is very obsoletely trilobed with the intermediate lobe rounded: the tarsi are rufous. (Unknown to Dr. Le Conte.)

[114.] 162. *ATTAGENUS PELLIO* Linn.—Length of body $2\frac{3}{4}$ lines. Taken in Nova Scotia by Capt. Hall.

This species, though particularly destructive to furs, is to be met with in other animal matters, and is very common in houses. De Geer describes its larva as having a very long body covered with a hard, shining skin of a reddish-brown colour and hairy; as having six legs, and the posterior extremity terminated by a long remarkable tail, formed of rufous hairs as long as the body, and placed horizontally in the same line. He says that their motion is gliding, but by snatches.

The American specimen, which is a male, is considerably larger than my British ones and blacker; but in other respects it precisely resembles them. The species may generally be known by its black or dark-piceous colour, covered, especially underneath, with decumbent whitish or cinereous hairs. The stalk of the antennae, and the tarsi, are testaceous, and the last joint of the former, in the male, is longer than the two first and cylindrical: the prothorax at the three posterior angles has three white spots formed of hairs, and the elytra are in the middle near the suture. [Taken in Canada].

[115.] 163. *DERMESTES LARDARIUS* Linn.—Taken in Nova Scotia by Capt. Hall; in Massachusetts by Mr. Drake. Latreille observes that this insect is found in every quarter of the old world. [We may add, in the new as well. It is a great pest to collectors in Canada.]

164. *DERMESTES DISSECTOR* Kirby.—Length of body $3\frac{1}{3}$ lines. Taken by Dr. Bigsby in Canada. [Apparently identical with Say's *D. nubilis* (Ent. Works, i. p. 300), which differs little, if at all, from *D. caninus* Germ. Not uncommon in Canada.]

[116.] 165. *BYRRHUS PICIPES* Kirby.—Length of body $3\frac{1}{2}$ lines. A single specimen taken in Lat. 54° .

Body black, covered with short decumbent hairs. Scutellum velvety-black: elytra with a pair of deep black interrupted stripes terminating in a transverse abbreviated posterior band of the same colour: legs piceous. [As this specific name is preoccupied, Le Conte has named the species *B. Kirbyi*. It is taken in Canada from Quebec to the north shore of Lake Superior].

[117.] 166. *BYRRHUS CONCOLOR* Kirby.—Length of body 3 lines. Two specimens taken in Lat. 54° .

This nearly resembles *B. picipes*, but it is much smaller, the prothorax is more distinctly channelled, the elytra have no black band, and the legs are black. [Supposed by Le Conte to be a variety of *Cytilus varius* Fab.]

THE LATE MR. RITCHIE.

The late Mr. A. S. Ritchie, whose loss we have so much reason to deplore, was born at Pettenween, a small town on the coast of Fifeshire. His father, Mr. Robert Ritchie, was a magistrate of that place. Accompanied by his cousin, Mr. David Ritchie, who now resides in Brantford, Ont., he left Scotland for Canada, in 1853. He remained in Montreal one year, during which time he was in the employ of Messrs. Morrison, Cameron & Empey. He then removed to Brantford, where he resided several years, and where he appears to have been very highly respected. Finally, he returned to Montreal in 1860 or 1861, where he remained until the time of his death. In the month of May, 1864, he was elected a member of this Society, and from May, 1866, to the present year, he was, as many here well know, an active member of the Council, of which, in 1867 and the present year, he was unanimously elected chairman. He was also a member of the editing committee of the Canadian Naturalist. During the six years of his connection with this Society, he brought before us seven papers, six of which are printed in the Naturalist.

The following are the titles of the papers, and the dates at which they were read :—

March, 1865.—On the structure of insects, illustrated by microscopical preparations.

March, 1866.—On the "Walking Stick" insect, *Spectrum femoratum*.

Nov., 1868.—On the Beetles of the Island of Montreal.

Oct., 1869.—On the White Cabbage Butterfly, *Pieris rapæ*.

Feb., 1870.—Why are insects attracted to Artificial lights?

April, 1870.—Aquaria Studies, No. 1. Oct., 1870.—Aqu. Stu., No. 2.

His favourite study was Entomology, and this he pursued in a philosophic spirit, studying the habits of insects in their native haunts by day, and examining the details of their anatomy under the microscope at night. He was also well acquainted with other departments of Zoology, especially with the infusoria. A little before his decease he was preparing a lecture, "On the Inhabitants of a drop of water," for the young men connected with Erskine Church, and for this Society, a paper on a curious ichneumon parasite of the white cabbage butterfly. He died on the 13th December, 1870, at the early age of 34.

Rev. A. De Sola, LL.D., spoke of Mr. Ritchie, as a most enthusiastic member who had devoted all his spare time to the study of science, which it would be to the advantage of business men to cultivate, and he trusted that many others would follow his example.—CANADIAN NATURALIST.

MISCELLANEOUS NOTES.

POLYHISTOR?—In the September number of the CANADIAN ENTOMOLOGIST, the State Entomologist of Missouri, who is a stranger to me, asserts that "there is something rather incoherent in my articles—that I have committed serious errors," and, furthermore, that I "must not talk of the family of *Hymenoptera*." When I write for the ENTOMOLOGIST, it is not with the intention of leading others astray, or of committing error; and after all consideration, I doubt if my significations would be looked upon as incongruous by the majority of my Entomological colleagues. I have no knowledge of Mr. Riley's definition of "family," and I care not to which of the theories he may have a leaning. I hold my own, and have a perfect right to talk of the *Family* of *Hymenoptera*. In following up this cause, perhaps this Naturalist would have the kindness to correct me with more distinctness, when next he publishes strictures upon my Entomological Notes, and state, for general information, how many families of *Hymenoptera* exist on this continent.

I am told that I "ought to know that *curculionidous* larvæ do not spin silken cocoons," and furthermore, that I "carelessly overlooked the legs" of the larva which I described on page 65, because it happens that inquilinous Lepidopterous larvæ take possession of acorns after they have fallen from the tree. On the 31st of March, the larvæ were of two kinds, and three sizes were found in the acorns of the White Oak in this latitude, and I am not astray in stating that a larva of an unknown Coleopterous insect did spin a cocoon within an acorn.

In the October number of the ENTOMOLOGIST, Mr. Riley expresses his sorrow for having rashly and inconsistently contradicted a matter with which he was not thoroughly acquainted. Having no knowledge of the existence in this country of a silk-spinning snout-beetle, and, as every Entomologist ought to be conscientious, he thought he should be, even at the ninth hour, and discovers good European authority stating that snout-beetles do spin silken cocoons, or at least, close their nidus with some substance resembling silk. In the September number of the ENTOMOLOGIST, p. 118, he tells us that the acorn weevil is *Balaninus rectus* Say, and that it is found in the acorns of one of the oaks in his State. Fortunately, at this juncture, Mr. Pettit, of Grimsby, comes to my aid, and throws additional light on this important inquiry, by the discovery of *Balaninus*

nasicus Say, in the Red oak, and when we search more thoroughly, I have no doubt but additional species will be found attacking acorns produced by other oaks, therefore there are no species that we can define as "the acorn weevil." The remarks made by Mr. Riley, at p. 137, No. 7 CANADIAN ENTOMOLOGIST, regarding the descriptions of Say, are gratuitous; for I have studied and compared his descriptions, and found them very accurate.

Mr. Riley appears to rely greatly on the form and color of the rostrum, as specific distinctions of *Curculionide*, but I have no faith in such forms alone, but, as in other *Coleoptera*, must look for those distinctions in the permanency of parts and marks on the body. Mr. Riley refers me to the 3rd Missouri Ent. Report, where, he says, I will find that "we do know something of the habits of quite a number of our snout-beetles;" and at page 138, number 7 CANADIAN ENTOMOLOGIST, he says that "we can do very little in classifying them until their habits and variations are better understood." I have not had the pleasure of seeing the said Report, which may contain the descriptions of quite a number of *Curculionide*, but it appears curious that in the two principal collections of *Coleoptera* in the United States, viz.: that of Dr. Le Conte, of Philadelphia, and Mr. Ulke, of Washington, the greater portion of snout-beetles were either undescribed or undetermined—at least, they were so, after Melsheimer's Catalogue was published, and I am aware that those in Dr. Le Conte's collection were not worked up in 1864, as in a letter from him in July of that year, he says:—"I regret that my *Curculionide* have not been arranged for the past seven or eight years, and therefore, I am not at liberty to name the species, for fear of giving currency to error." In 1863, Dr. Le Conte issued a revision of the latter catalogue in conjunction with materials from his own collection, which is a standard for comparison, and it terminates with the *Elateride*. Part II., of said List, will, no doubt, occupy years of hard work, ere it can be placed in the hands of Entomologists with a perfect list of the *Curculionide* of this country; therefore, I may conclude by surmising that Mr. Riley has only a vague knowledge of our Northern species.—WM. COUPER.

NEW BUTTERFLIES AT QUEBEC.—The season of 1871 has been marked by the capture, at Quebec, of three butterflies new to the locality, viz.: *Papilio asterias*, taken at Lorette; *Polyommatus porsenna*, at the Island of Orleans, and an unidentified species of *Melitæa* at the latter place.—G. J. BOWLES, Quebec.

EXCHANGES, &c.

The undersigned would be pleased to open communications with any Entomologist in Canada, United States or England with a view to exchanging specimens. Address JAMES COLWELL, care of A. CHOUN, Kingston, Ont.

THE undersigned would be pleased to correspond with Lepidopterologists (Southern and Western U. S. preferred), with a view to exchanges. Address EDW. L. GRAEF, 40 Court St., Brooklyn, N. Y., U. S.

LEPIDOPTERA, &c.—I have a collection of Birds' Eggs, Lepidoptera (including some from Florida) and Coleoptera, duplicates of which I should like to exchange, giving preference to the two first named.—JOSEPH E. CHASE, Lock Box 46, Holyoke, Mass.

An American Entomologist, who has made a speciality of Lepidoptera, would like to correspond with collectors in any part of the world.—Address H. K. MORRISON, care of E. K. BUTLER, 68, Pearl-street, Boston, Mass.

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